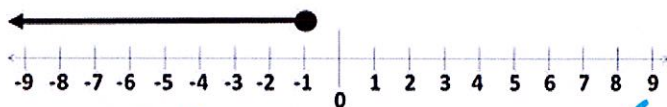


Name: Answers

Important Note: This review packet does not contain questions from our current and final unit, namely Unit 5. I will provide review materials for Unit 5 at the end of next week.

1. Write the domain of the graph in both inequality and interval notation.



Inequality: $x \leq -1$

Interval: $(-\infty, -1]$

2. Write the domain of the graph in both inequality and interval notation.



Inequality: $-2 \leq x < 5$

Interval: $[-2, 5)$

3. Solve each inequality. Graph the solution set on a number line, AND write the solution in interval notation.

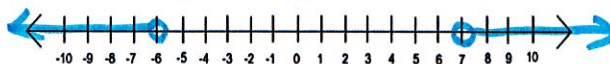
a. $-1 < \frac{1}{2}p + 4 \leq 8$



$-5 < \frac{1}{2}p \leq 4$ $-10 < p \leq 8$ $(-10, 8]$

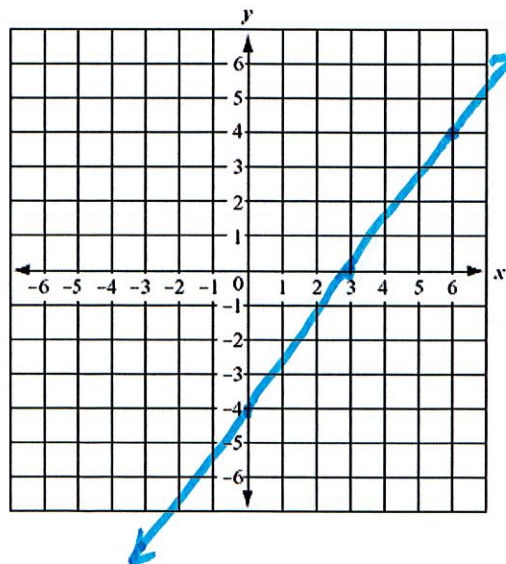
b. $4 - 2x > 16$ or $3x - 10 > 11$

$-2x > 12$ or $3x > 21$
 $x < -6$ or $x > 7$

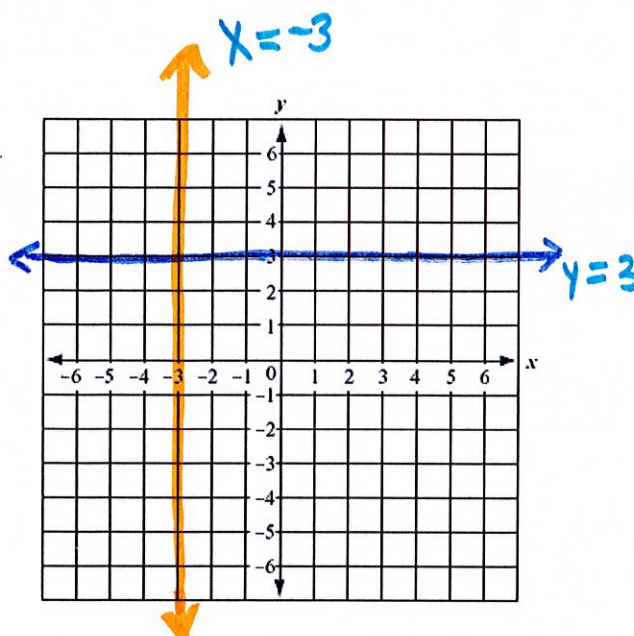


4. Graph the line with equation $4x - 3y = 12$

$(0, -4)$ $(3, 0)$



5. Write an equation for each line shown.



6. Given a line containing the points $(-2, 5)$ and $(-4, 2)$. Find an equation of the line in slope-intercept form. Convert your equation to standard form.

$$m = \frac{2-5}{-4-(-2)} = \frac{-3}{-2} = \frac{3}{2}$$

$$y = \frac{3}{2}x + b$$

$$5 = \frac{3}{2}(-2) + b$$

$$5 = -3 + b$$

$$8 = b$$

$$y = \frac{3}{2}x + 8$$

$$2y = 3x + 16$$

$$2y - 3x = 16$$

$$3x - 2y = -16$$

7. Simplify $49^{\frac{1}{2}} = 7$

8. Simplify $27^{\frac{2}{3}} = (27^{\frac{1}{3}})^2 = 3^2 = 9$

9. $\sqrt[4]{16} = 2$

10. $\frac{35x^4y^8}{7x^{-3}y^5} = 5x^7y^3$

11. $8x^2y^6 + x^2y^6 = 9x^2y^6$

12. $(4xy^5)^3 = 64x^3y^{15}$

13. $(8x^2y^6)(x^2y^6) = 8x^4y^{12}$

14. Write $\sqrt[4]{y^3}$ in exponential form

$$y^{\frac{3}{4}}$$

15. Square the binomial and simplify $(x-7)^2 = (x-7)(x-7) = x^2 - 14x + 49$

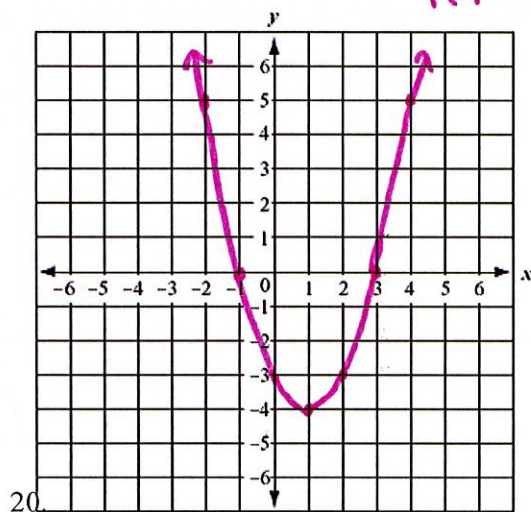
16. Multiply and simplify $(3x-1)(4x+5) = 12x^2 + 15x - 4x - 5 = 12x^2 + 11x - 5$

17. Solve $(x-5)(3x+2)=0$ $x-5=0$ $x=5$ $3x+2=0$ $x=-\frac{2}{3}$ $\{5, -\frac{2}{3}\}$

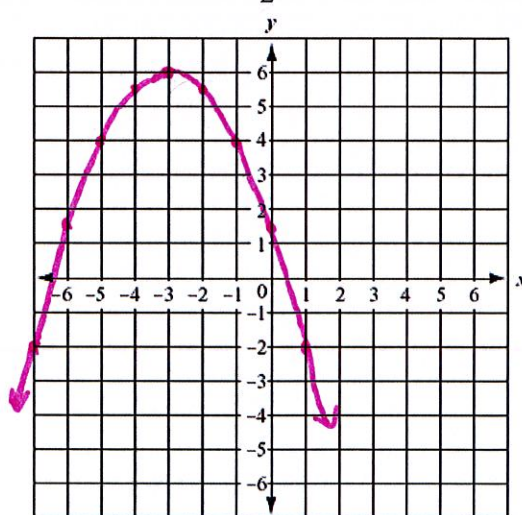
18. Solve $x^2 + 7x = 0$ $x(x+7)=0$ $\{0, -7\}$

19. Solve $x^2 - 16 = 0$ $(x-4)(x+4)=0$ $\{4, -4\}$

20. Graph $f(x) = (x+1)(x-3)$ axis $x=1$
 $f(1) = -4$



18. Graph $f(x) = -\frac{1}{2}(x+3)^2 + 6$ $V(-3, 6)$



19. Given the parent function $f(x) = x^2$, circle the letter of the correct description of the transformation $T(x) = (x-3)^2 + 1$.

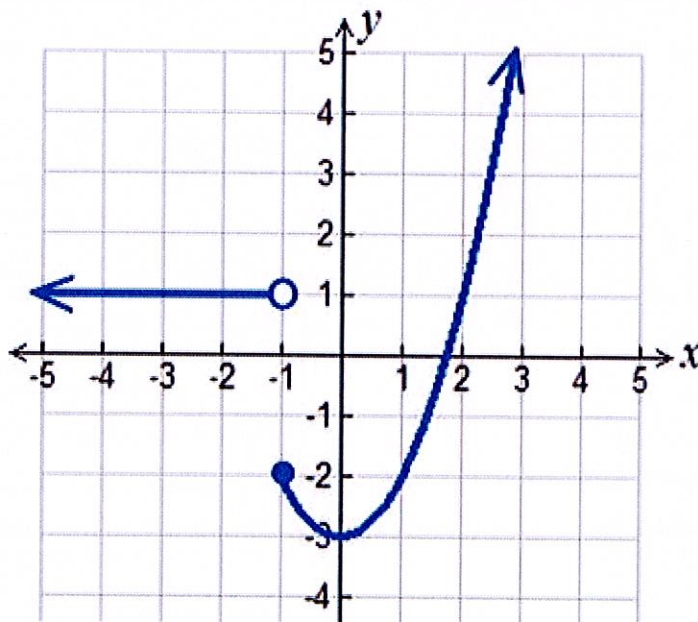
a. Vertical shift up 3 units and horizontal shift right 1 unit

☒ b. Horizontal shift right 3 units and vertical shift up 1 unit

c. Horizontal stretch by a factor of 3 and vertical shift down 1 unit

d. Horizontal compression by a factor of 3 units and vertical shift down 1 unit

20. Line A has equation $y = \frac{2}{5}x - 6$. Line B contains the point $(4, -9)$ and is perpendicular to line A. Determine an equation in any form for line B.



line B
 $y = -\frac{5}{2}x + b$
 $-9 = -\frac{5}{2}(4) + b$
 $-9 = -10 + b$
 $1 = b$
 $y = -\frac{5}{2}x + 1$

21. Given the graph of $y = f(x)$ above, determine the following (approximate if necessary):

- Write the domain of $y = f(x)$ in interval notation. $(-\infty, \infty)$
- Write the range of $y = f(x)$ in interval notation. $[-3, \infty)$
- Determine the value of $f(0) = -3$
- Determine the value of $f(-1) = -2$
- Determine the value(s) of x for which $f(x) = -3$ $x = 0$
- Using interval notation, determine the values of x for which $f(x)$ is increasing $(0, \infty)$
- Using interval notation, determine (estimate) the values of x for which $f(x) < 0$ $[-1, 1.8)$